

Function of Repetition in the Talk of EFL Learners at the Computer

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This study investigated the function of repetition of English in the talk of Korean primary school students who worked in dyads on English learning software. Data were taken from the interactions of three pairs of students in the fourth grade. Their interactions at the computer were videotaped and then all the talk produced by the students and the computer was transcribed. It was shown that repetition of the utterances emanating from the computer was the most predominant feature of the students' use of English. Based on the view that language use serves not only social communication but also represents cognitive activity, a qualitative discourse analysis was conducted to uncover how the students used repetition of English words and phrases in the context of the unfolding interaction at the computer.

The analysis shows that repetition, serving both communicative functions and cognitive ones, facilitated the students' interaction with each other and with the computer. In particular, some distinctive functions of repetition indicate that students' use of repetition might contribute to their learning of English; the students used repetition as a locus for the creative use of English in a new context to communicate in English, as a means for practicing and memorizing English and for assessing their learning of English, and sometimes as a scaffold to support their cognitive work in solving problems.

Key words: interaction, L2 repetition, discourse analysis

1. Introduction

Can computers have the role of catalyst for activities that promote meaningful interaction between second language learners who work cooperatively? This question has been explored through examining the actual talk engendered around the computer. The studies show that

repetitive talk is one of the most prominent features of discourse generated around the computer. The majority of these studies (Piper, 1986; Abraham & Liou, 1991), however, only look at the surface form of repetitive utterance and consider it to have little value in interaction. In this study, through a close examination of how and when repetition takes place, the researcher attempts to analyze the function of L2 repetition in the talk of L2 learners at the computer, thus showing its possible role in the learners' interaction with each other and with the computer, and their learning of L2.

Research has shown that repetition is ubiquitous in everyday conversation as well as around the computer. Kleifgen (1992) argues that users who work together at the computer apply two predominant discourse strategies, repetition and reduction, and they incorporate a great deal of on-screen text into their talk. Tannen (1987) shows that repetition plays various roles in communication. It helps not only a speaker to produce language in a more efficient, less energy-draining way but also a listener to comprehend it by providing semantically less dense discourse. It serves also as a 'cohesive tie' in a discourse process by linking certain parts of an utterance to others. In addition to these functions on the 'basic message' level of talk, repetition also functions on the 'metamessage' level at which messages about social relationship or attitude are communicated and thus interpersonal involvement is secured.

With regard to the role of repetition in first language development of children, Watson-Gegeo and Gegeo (1986) examined Kwara'ae caregivers' interaction with their young children extensively. This research demonstrates that the caregivers use repetition routines not only to teach children contextually relevant linguistic forms but also to teach social interactional behavior such as how to ask and answer questions, greetings and leave-takings, making requests, or responding appropriately. Dowker (1991) examined modified repetition in children's simple story-telling. Children between the ages of two and six with or without limited English were asked to tell a story after looking at the successive presentation of three pictures. They produced modified repetition in nearly half of their elicited stories. Dowker suggests two possibilities for this phenomenon; first, children's use of modified repetition may have the function of enabling them to practice grammatical forms, or it may simply be a reflection of a general human tendency toward the use of pattern and regularity in language.

In the field of second language acquisition research, the phenomena of imitation and repetition use have been widely documented. Hatch, Peck, and Wagner-Gough (1979) note that imitation or repetition of previously heard sequences allows learners quick entry into communication, without making strict sense or without comprehension. Saville-Troike, McClure, and Fritz (1984) also show that children learning a second language, no matter what their native language background, make use of the same communicative tactics, such as a non-vocal behavior, simple routines, single referential terms, and repetition of part or all of previous utterances.

In the second language interaction research which is based on the Vygotsky's theory on language and the learning process, several recent studies (Tomlin, 1994; DiCamilla & Anton, 1997) make an attempt to explain the use of repetition in second language interaction as a social-cognitive activity. Vygotsky's (1981) theory emphasizes the role of language and social interaction in the development of individual cognition. According to him, learning occurs through social interaction between a learner and a more experienced adult or a peer. Here signs, particularly speech, function as mediating tools in the development of the learner's cognition. To take an example, the learner might get cognitive benefits from repeating the teacher's talk, while solving mathematical problems with the help of the teacher. In this way, speech (e.g., repetitive talk) can serve as a psychological tool in organizing functions that are critical to mental activity (e.g., voluntary attention, perception, planning, memory, conceptual thought, evaluating). During the collaborative dialogic process, the learner gradually internalizes the language of others that mediates social interaction and is able to perform the task at hand by him/herself (Wertsch, 1979). Furthermore, just as social dialogue has a strategic function in moving the learner to the point where the learner becomes self-regulated in the performance of tasks, inner speech which is externalized in cognitively difficult tasks as either private speech or private writing also has a strategic function of planning for an activity and guiding him/herself when the learner tries to develop self-regulation over the tasks (Frawley & Lantolf, 1985).

Tomlin (1994) argues that the significance of repetition in second language discourse lies not only in its social consequences but also in its cognitive consequences on the developing grammar of the second language learner. According to him, the repetition may contribute 'much more to the interaction than simply increasing the frequency of exposure

to input utterances' (p.192). He points out that through a careful examination of the occurrences of repetition, we can gain an understanding of how repetition as a social act comes to provide cognitive support for the second language learner. DiCamilla and Anton (1997) investigate the role of repetition in second language collaborative interaction. They examined the discourse of Spanish learning students who were working on a writing assignment in dyads. This study demonstrates that the students' repetition of both L1 and L2 utterances mediates their writing activity, thus playing a strategic cognitive role in creating and maintaining a shared perspective of the task ('intersubjectivity') and in constructing scaffolded help, which enables the learners to perform the task and achieve their goals.

In line with other L2 interaction research within the Vygotskian framework (Swain & Lapkin, 1998), the present study is based on the view that language serves not only communicative function, but is, itself, a cognitive tool. Thus cognitive processes are manifested in the talk that is generated by learners as they participate in linguistic problem-solving tasks. This study aims to investigate the role of repetition of English in the talk of primary school students who were working in dyads on an English as a foreign language learning (EFL) software program at the computer. In spite of the pervasiveness of meaningful repetition in child and adult speech and its possible role in language development, as mentioned earlier, the structural analysis of repetition in the previous research on the talk around the computer leads to the overly simplistic view that repetitive talk often occurs in a random and redundant way and thus interaction around the computer is not beneficial for learning a second language (Piper, 1986). However, if we take a close look at surrounding verbal and non-verbal contextual environment of repetition, it may be possible to enhance our understanding of the role of repetition around the computer.

2. Method

2.1. Setting

The data used in this study were gathered at one of the primary schools in Seoul, Korea. The fourth grade English teacher in the school

uses the computer as one of many instructional tools such as textbooks, an audiotape recorder, and a VCR. She uses a CD-ROM title produced by the company that published the English textbook used at the school. Usually she integrates the software as a part of her instructional activity, even though the class takes place in a classroom where there is only one computer connected to a big screen TV.

The researcher observed several fourth grade English classes. The researcher could see that students were eager to interact directly with the computer by themselves through controlling the mouse, and the English teacher tried to give each student an equal opportunity to do so. As a result, the same activity with the same content kept being repeated. In spite of these problems, the instructional method of teaching English to the fourth graders in this school is said to be innovative in the sense that modern technology is being employed in EFL teaching and learning activities. Yet it is clear that the faculty needs to work on developing teaching models for using computers in EFL classes.

2.2. Participants

The data for this study came from the interactions of three pairs of Korean primary school students in the fourth grade. They have had one year of experience in learning English in their classrooms. The English teacher selected these participants from among students who had volunteered to participate in this study and they formed self-selected pairs to work together at the computer. The summary information about the participants is shown in Table 1.

Table 1. Formation of Pairs among the Participants

	Pair A	Pair B	Pair C
Name	B1-G1	G3-G4	B2-G2
Class	Class 1	Class 1	Class 2

Note: Students' gender and numerical numbers are used for their names. B is for boy and G for girl.

The participants' experience in using computers varied along with their EFL learning background and their relationship with their partner. Pair A were also partners in the classroom. B1 took a computer course offered as an after-school activity and had a computer and software at home. He

had never taken the after-school English Conversation class, but had been taking the Computer English class in which he learned English by using computer software for two years. Thus, he had been exposed to several software programs like *Just Grandma and Me* and *Arthur's Reading Race*. G1, B1's partner, on the other hand, did not have a computer at home. She did not have any experience of working at the computer except in the fourth grade English class. But she had studied English at home using an audiotape recorder and workbooks for one year when she was a second grader.

Pair B consisted of two girls, G3 and G4, who were best friends. G3 had a computer at home, but she did not work at the computer since she did not have any software to play with. She had taken the Computer English class when she was a second grader. So she had been exposed to *Just Grandma and Me*. She had not taken the English Conversation class, but she had had experience in learning English through workbooks and audiotapes for one year when she was in second grade. Her partner, G4, started to learn English only when she became a third grader. She did not have any previous experience of working at the computer except at her cousin's house.

Pair C were also in the same class. B2 had been working on the EFL learning computer programs such as *Little Monster at School* at home. He had also been taking the Computer English class for one and a half years and he was familiar with programs like *Just Grandma and Me* and *Arthur's Reading race*. He had also started taking English Conversation class at the beginning of fourth grade. However, his partner, G2, did not have any experience of working at the computer except at her friend's house and in the regular fourth grade EFL class. She had not taken any extracurricular English lessons, either.

2.3. Software

The software program that the students worked on is *Maru's English Adventure* produced in 1996 by a private company. The program is divided into seven episodes, each of which provides different activities to users. It gives students a tangible goal to accomplish through solving problems at each stage of the program: that goal is to restore different places on an island that is put under a magic spell by a wicked magician. The main characters of the program are Maru, John, and the magician.

If Maru follows the instructions and gives the right answers to the questions, thus showing his understanding of English words or dialogues, he can rescue a place and move forward to another place. When questions or instructions are given, there appear three or four icons for possible choices of the answer. Whenever users put the cursor on the icons, the computer emits possible choices of the answer. Users are supposed to choose one of them. During the problem-solving activities, users can listen to questions or instructions repeatedly by clicking on the icons. They can repeatedly hear possible choices of the answer by putting the cursor on the icons for them.

The framework for tasks in each episode of the program is basically the same and can be summarized as follows:

- (1) In the opening scene, users can practice and learn English words or short dialogues that are related to solving the problems by clicking on things or persons on the screen. Users can hear English words or dialogues repeatedly.
- (2) If users click on the magician, the problems to be solved are provided. In each place on the island, two types of task activities are given. Usually the first is a main task and the second a reinforcing one that checks users' learning of English words or phrases in the main task. If users give a wrong answer three times in the main task, they are taken back to the opening scene. If they give a wrong answer three times in the reinforcing task, they have to go back to the main task and perform it again.
- (3) Users can also go to the section 'learning words and dialogues' and learn the meanings or pronunciations of the words and dialogues used in the task at hand.

The English words and phrases are presented with contextual support such as sound, graphics, and animation. Users have access to (1), (2), and (3) in a non-linear way. The summaries for the main content of one of the episodes are provided in Appendix A.

2.4. Data Collection

Data collection included the gathering of videotaped participant interactions at the computer, videotaped regular EFL classroom interaction which provided preliminary information about the fourth grade EFL class, and fieldnotes of informal oral interviews with the participants which

gave background information about them. The school allowed me to collect data during the end of the spring semester, only to the extent that the researcher would not interrupt students' regular schedule of school activities. So the researcher gathered data in a quasi-experimental setting, that is, not in an EFL classroom setting, but in a computer lab situation where only the participants worked on the programs. This work was done either early in the morning before regular classes began, or when it was time for their English class during which I was permitted to take them to the computer lab. Each pair of students had the opportunity to work on the program twice. Table 2 summarizes the amount of time each dyad spent working on the software program per session.

Table 2. Amount of Time Each Dyad Spent Working on the Software Program per Session

	Pair A	Pair B	Pair C
Session 1	40 minutes	48 minutes	47 minutes
Session 2	37 minutes	50 minutes	43 minutes

The video camera was mounted on a tripod and placed behind the pairs of the students while they were working on the program. To get good sound quality, an extra microphone connected to the video camera was placed on the computer desk. At the same time, a small audio tape recorder was placed on one side of the desk, and a microphone connected to the recorder was pinned to one of the student's collar to back up the videotapes.

While collecting data, the researcher took the role of a teacher, giving the students instructions on how to work together at the computer. The researcher told them that they could talk to each other in Korean or in English, ask each other for help, and take turns in controlling the mouse. *Maru's English Adventure* was new to all of them. To save time that might be spent on procedural matters, the researcher briefly explained to them the functions of icons on the introductory screen by showing them the booklet for the software. Several times the students asked me what they should do when they had technical difficulties in navigating the program. However, they did not seek help from me in relation to the content of the program, such as English words or sentences and their meanings.

As an observer, the researcher was present all the time they were working at the computer. Sometimes the researcher strolled around the workstations to make sure they were being videotaped properly. The researcher tried to make my presence unobtrusive.

2.5. Data Analysis Method

Discourse at the computer is highly context-dependent; the interactants make extensive use of deixis and thus their language is elliptical. The computer acts as one of the interactants and its involvement in the discourse is realized in various ways, that is, vocally (e.g., spoken instruction or feedback) and non-vocally (e.g., text written on the screen, change of the screen, animation or sound). Moreover, since most of the talk at the computer, whether produced by the users or the computer, is for inducing an action from one of the interactants, the meaning of an utterance can be best explained when we have information about the situational context such as the contents of the screen or body gestures. Therefore, a detailed discourse analysis should be done to comprehend the talk among interactants around the computer.

To identify signaling and inferencing procedures used by the participants in making situated interpretations of their talk and the strategies used to solve the problems given by the software program, I draw on Gumperz's (1982) notion of "contextualization cues" (p. 131). These cues are verbal and nonverbal signs which, when mapped onto message content, can be shown to be functional in the signaling of interpretive 'frames' (Goffman, 1974). The interpretive frames are what the interlocutors think they are doing when they talk to each other (e.g., joking, arguing, commending, scolding), in which hearers can infer what is going on. Among the contextualization cues are turn-taking with the mouse, clicking on things on the screen, change of screen, eye gaze, gestures, body movements, head nods, discourse markers, laughter, and repetition.

To this end, all the talk produced by the users and the computer was transcribed according to the conventions that are provided in Appendix B. In the left column is the talk uttered by the users and emitted by the computer. On the left side of each utterance are the labels of the participants that produced the utterance; C stands for the computer. The users' non-verbal signals, the holding of the mouse, the contents of the computer screen, and other contextual information that are likely to

function as contextualization cues are described in the right column.

3. Analysis

The students in this study used English as well as Korean, even though their English proficiency was very limited. Korean was used most of the time, especially when they interacted with each other. However, they employed English words and phrases a lot while they were engaged in interacting with the computer. Most of the students' use of English was found to be repetition of the talk, read-aloud, or speak-aloud emitted from the computer. The present study focuses on showing possible functions of repetition through examination of how and when repetition takes place in interaction. In this study, repetition is considered to refer to exact restatement of utterances, or partial restatement with variation (Tannen, 1987).

For the purpose of discussion, the researcher divided functions of repetition into several categories. However, they are neither mutually exclusive nor absolute categories. They represent one of possible roles of repetitive talk in a specific context. The analysis of repetition reveals that it is simultaneously a means of communication and a tool of thinking, as DiCamilla and Anton (1997) have argued, showing various cognitive functions as well as communicative ones in interaction. The following is an analysis of excerpts of the discourse among the students and the computer, which is representative of how they used repetition of English words and phrases to interact with each other and with the computer.

3.1. Communicative Functions of Repetition

3.1.1. Involvement

The function of repetition as an involvement marker is the most frequently found function in this study. The excerpt considered here is a part of the second interaction between B2 and G2 (pair C). In this segment of interaction, it is shown that G2, through repetition, displayed engagement in the ongoing activity. Excerpt 1 begins with a scene of a park. On the screen, there are flowers, trees, animals and rocks, which have lost their colors. B2 initiated the interaction with the computer by clicking on the magician.

1. C : Magician: Ge Im Eh Sur Ee Gi Myurn ,
{If you win the game,}

{I will give you a palette and a brush.}

2. G2 : [Ttoh Ge Im Ee Dah.
{It's a game again.}

4. C : Magician: Ur Ttae, Hae Boh Get Nuh Nyah?
{Now, you wanna try?}

 $\{O, K\}$

5. B2 : Neh Gah Yurng Ur Roh Mahl Hae, (xxxx) (looks at G2 and pulls her hand)
{You speak in English,}

(on the screen the mode for the game
is provided)

8. G2 : What color [is it?

(B2 puts the cursor on one of the choices)

11. G2 : [It's red.

(B2 puts the cursor on another choice)

13. G2 : [It's orange.

(B2 puts the cursor on the last choice)

15. G2 : [It's yellow.

17. B2 : [It's [yellow!

(clicks on the choice for 'yellow' and
takes a look at G2)

19. Yes.

20. C : Ding dong dang dong.

an influence on G2's use of English by suggesting that she use English (line 5). G2 responds to B2's suggestion promptly; she uses English to answer B2 by saying 'O. K.' (line 6). Whenever the cursor is put on an icon, the computer says aloud a possible choice. Every time the computer says aloud a possible choice, G2 repeats it (lines 11, 13, and 15). After repeating 'It's yellow' (line 15), G2 utters 'Yeah', indicating that this is the answer (line 16). On the other hand, B2 has been putting the cursor on each icon without repeating the choices after the computer (lines 10 and 12). But he exclaims 'It's yellow!' overlapping G2's utterance 'Yeah' (lines 16 and 17). At the same time, he clicks on the icon for 'yellow' and takes a look at G2. Here, it is apparent that B2's repetition of 'It's yellow' is to point out the answer.

Through the analysis of the interaction above, certain patterns of G2 and B2's repetition of English emerge. First, B2 repeated after the computer only when the computer spoke aloud a right answer. Second, G2 repeated the computer's question. She also repeated nearly all possible choices for the answer, even though they were not the right answers. As a result, G2 repeated after the computer more often than B2. G2's frequent repetition may be explained by the fact that she was not directly controlling the computer, whereas B2 was controlling the mouse. That is, it seems that, through repetition, G2 continued to show her engagement in the interaction and thus compensated for her indirect interaction with the computer. Unlike the role of G2's repetition as an involvement marker, B2's repetition was used to indicate that the repeated choice was the right answer when we consider the fact that his repetition took place only when the computer spoke aloud the right answer. These patterns were persistent throughout the interaction while B2 and G2 were working on the other problems given in the episode illustrated here. With regard to B2 and G2's use of English, it is notable that B2 suggested that G2 use English at the beginning of the interaction (line 5). Following B2's suggestion, G2 enthusiastically repeated after the computer and made use of English expressions to interact with B2 and with the computer, even though they were very simple ones like 'O. K.', 'Yeah.' and 'Yes'. B2 himself used English expressions such as 'Oh, yeah!' and 'It's a game!' (line 3), showing his proficiency in English.

In sum, it is possible that B2's suggestion of using English and G2's indirect interaction with the computer induced her enthusiastic repetition of the voiced questions and answers emanating from the computer in an

effort to display her involvement in the ongoing problem-solving activities.

3.1.2. Pointing out the Answer

The students in this study often repeated one of the possible choices for an answer to signal that the repeated one was the right answer. The following excerpt taken from the second interaction between B1 and G1 (Pair A) shows that both B1 and G1 used repetition as a means for pointing out the correct answer. B1 and G1 are working on a task in the episode, 'a park that has lost its color'. B1 is controlling the mouse.

Excerpt 2

1. C : Magician: What color is it?
(B1 puts the cursor on one of the choices for an answer)
2. C : It's orange.
(B1 puts the cursor on the second choice)
3. C : It's purple.
(B1 puts the cursor on the third choice)
4. It's red.
5. G1 : [Red.
6. B1 : [Red.
7. G1 : Red
(B1 clicks on the icon for 'red')
8. C : Ding dong dang dong
(the sound signaling the answer is right is heard)
9. C : Magician: Oon Ee Jot Un Nur Surk Ee Goon.
{You're a lucky kid.}
10. G1 : Nah Moo (xxxx)
{Tree}
11. C : Magician: What color is it?
(B1 puts the cursor on one of the choices)
12. C : It's green.
13. G1 : Green.
(B1 clicks on the icon for 'green')
14. C : Ding dong dang dong
(the sound signaling the answer is right is heard)

The computer says aloud each possible choice whenever the cursor is put on an icon (lines 2, 3, and 4). B1 and G1 do not repeat the first two

possible choices. And yet both of them simultaneously repeat the main word, 'red' in the third choice (lines 5 and 6), which seems to signal that 'It's red' is the right answer. G1 once again repeats 'red', confirming that 'red' is the answer. For another question (line 11), G1 repeats 'green' after the computer (line 13) and B1 clicks on the icon for 'green' to mark it as the right answer. Here, again, G1's repetition of 'green' seems to point out that it is the right answer. Excerpt 2 continues:

15. C : Magician: Oon Ee Jot Un Nyur Surk Ee Goon.

{You're a lucky kid.}

16. C : Magician: What color is it?

17. B1 : It's black.

(B1 puts the cursor on one of the choices)

18. C : It's black.

(B1 clicks on the icon for 'black')
(the sound signaling the answer is right is heard)

20. C : Magician: Maht Aht Goon, Ee Rurl Soo Gah!

{Correct, how come!}

21. What's this?

(B1 puts the cursor on one of the choices)

22. C : It's an orange tulip.

23. B1 : Ee Gur Maht [Jee?

{This is right?}

24. G1 : [Orange tulip.

(B1 clicks on the icon for 'orange tulip')

25. C : Ding dong dang dong.

(the sound signaling the answer is right. B1 laughs))

26. C : Magician: Maht Aht Goon, Ee Rurl Soo Gah!

{Correct, how come!}

27. B1 : Orange tulip.1.

(G1 takes a look at B1)

28. C : Magician: What's this?

29. B1 : What's this?

30. G1: It, [

(B1 puts the cursor on one of the choices)

31. C [It's a blue bird.

32. G1: It's a blue bird.

(B1 puts the cursor on the icon for

33. C : It's a blue bird. 'blue bird' again)
(B1 clicks on the icon for 'blue bird')
34. C : Ding dong dang dong. (the sound signaling the answer is right is heard)

B1 seeks G1's confirmation that 'It's an orange tulip' is the correct answer (line 23). Overlapping the last syllable of B1's question, G1 repeats the main words of the sentence uttered by the computer 'orange tulip' (line 24) and then B1 clicks on the icon for it to mark it as an answer. Here, G1's repetition ratifies that 'It's an orange tulip' is the right answer. After the magician's feedback, B1 also repeats 'orange tulip' confirming that it is the correct answer (line 27). Interrupting G1's attempt to provide an answer (line 30), B1 puts the cursor on one of the choices for an answer and the computer says aloud 'It's a blue bird' (line 31). G1 repeats 'It's a blue bird' (line 32). Following G1's repetition, B1 again puts the cursor on the icon for 'It's a blue bird' from which the cursor had been removed and clicks on the icon. The fact that, after listening to G1's repetition, B1 puts the cursor on the icon from which the cursor had been removed and clicks on it shows that B1 regarded G1's repetition as pointing out the answer.

This analysis demonstrates that B1 and G1 repeated after the computer's speak-aloud choices only when these were correct answers. This pattern of behavior suggests that repetition in this interaction functioned as an indicator of a correct answer.

3.1.3. Creative Use of English

Some students in this study made use of ready-made frames and simple expressions creatively to deliver meaning in a new context. Sometimes, they repeated after the computer while the characters of the software program such as Maru and John were having a conversation. This may have enabled the children to repeat English expressions in a situational context and thus have an opportunity to understand when to use the utterances.

Excerpt 3 is from the second interaction between B1 and G1 (pair A). B1 and G1 have just finished the fourth task which was to rescue people under a magic spell in the store.

'Let's go', is correct by uttering 'Ung' {Yes}. Then, she also provides the meaning of 'Let's go' by translating it into Korean (line 15). Overlapping G1's translation, B1 repeats 'Let's go', again adding a word in Korean 'Uh Dee Roh' {where} (line 16). Here, he makes creative use of 'Let's go' in order to deliver the meaning 'Where should we go?' Hearing B1's question which is made up of the Korean phrase and the creatively used repetition of 'Let's go', G1 laughs. Then, B1 laughs, too. To answer B1, G1 also utilizes 'Let's go' creatively in a new context, adding to it the Korean phrase 'Oh Gwah Roh', which means 'to episode five', while smiling at B1 (line 17). So her entire utterance comes to mean 'Let's go to episode five'. Interestingly, both B1 and G1 used the English phrase, 'Let's go', to make meaning in a new situational context in which they need to go to the episode five to continue solving the problems.

What emerges from the above analysis is that, through repetition, B1 and G1 were able to make the phrase, 'Let's go' their own, by appropriating it to deliver meanings to each other in their own situational context. Through the appropriation of the English phrase, 'Let's go', B1 and G1 show their ability to create a novel relationship between language and context, which is a good instance of Hymes' (1972) concept of the creative aspect of language use.

The next excerpt to be examined is taken from the first interaction between B2 and G2 (pair C). The analysis of this excerpt illustrates how B2 and G2 interacted with each other and with the computer without using Korean by virtue of making use of a ready-made repetitive frame 'It's a...', appropriating parts of the other's or the voiced utterances emanating from the computer through repetition, and utilizing simple English expressions. The opening scene of the episode 'a park that has lost its color' appeared on the screen. B2 and G2 have listened to the computer say aloud some information related to solving the problems by clicking on things in the park. B2 is holding the mouse.

Excerpt 4

1. B2 : It's a wizard? (points to the magician and looks at G2)
2. G2 : Wizard. (nods her head)
3. B2 : Click.
4. G2 : Click. (B2 clicks on the magician)
5. C : Magician: Hah Hah Hah, Jahl Doh Chaht Ah Nae Nun Goon.
{Hah Hah Hah, You found me quickly.}

6. B2 : Oh, yeah! (bounces up and down)
7. Your turn. (looks at G2)
8. C : Maru: Mah Burp Sah, Ur Sur Saek Kkahl Ul Dol Ryur Jwoh.
(Magician, give the colors back soon.)
9. B2 : Your turn. (pulls G2's hand to the mouse and
G2 takes hold of it)
10. G2 : (xxxx)
11. C : Magician: Saek Kkahl Ul Guh Nyahng
Dol Ryur Jool Soon Urpt Jee.
(I can't give the colors back for nothing.)
Geh Im Eh Sur Ee Gee Myurn
Pahl Reh Tuh Wah Boot Ul Joo Jee.
Ur Ttae Hae Boh Get Nuh Nyah?
(If you win the game, I'll give you a palette and
a brush. Now, you wanna try?)
12. Maru: Uri Mah Dun Jee.
(O. K.)
13. B2 : Oh, nol (the screen begins to change)
14. G2 : Nol
(G2 looks at B2)
15. B2 : Oh my God!
16. G2 : Magician: What color is this?
17. B2 : Time, time, time. (takes G2's hand off the mouse
and takes hold of it)
(B2 puts the cursor on one of the
choices)
18. C : It's yellow.
(B2 puts the cursor on another
choice)
19. It's blue.
(B2 puts the cursor on the last
choice)
20. It's green.
21. G2 : Yes. (nods her head)
22. B2 : It's a green? (looks at G2)
(G2 nods her head)
(B2 clicks on the icon for 'green')
23. C : Ding dong dang dong. (the computer signals the answer
is right)

Pointing to the magician and looking at G2, B2 says, 'It's a wizard?' (line 1). Here, to make meaning with G2 in English, B2 makes creative

use of the ready-made repetitive frame 'It's a...' with a rising intonation, thus seeking G2's confirmation. G2, nodding her head, confirms that it is a wizard by repeating 'Wizard' (line 2). Then B2 utters 'Click' (line 3), which apparently means that he is going to click on the magician in order to get into the main task activities. G2 repeats 'Click', signaling that she agrees with B2's decision (line 4). It is noteworthy that G2 appropriates B2's words 'wizard' and 'click' by means of repetition to communicate with him. B2's effort to communicate with G2 in English continues; to deliver his intention of letting her take control of the mouse, B2 uses both body language and verbal repetition (line 7 and 9). Here, B2's consciousness about his dominance in controlling the mouse is exhibited. After listening to the magician, B2 and G2 express their concern about playing the game by using simple English expressions (line 13, 14, and 15).

When the magician asks a question (line 16), B2, all of a sudden, says aloud 'Time, time, time', taking G2's hand off the mouse and then grasping it (line 17). His action of taking the mouse away from G2 seems to indicate that his utterance of 'time' is intended to mean that he wants the mouse. Through repeating 'time' two more times, B2 delivers his message intensively. B2 begins to put the cursor on each icon to hear possible choices for an answer. When the computer says 'It's yellow' and 'It's blue' (line 18 and 19), neither G2 nor B2 respond. However, when the computer says aloud 'It's green', G2 signals that it is the right answer by uttering 'Yes' while nodding her head (line 20). Then, B2, looking at G2, asks her if 'It's green' is the answer by repeating 'It's green' with a rising intonation and the addition of the non-definite article 'a' (line 22). This is another instance in which B2 incorporates the phrase 'It's green' emanating from the computer into his question to make meaning with G2, thus showing his creative use of English from statement to question by making a new connection between 'It's green' and the situation at hand. B2's question is acknowledged by G2's nodding her head.

In this excerpt, we see that B2 and G2, who had limited English proficiency, made efforts to co-construct meaning in English by means of repeating exclamations, simple expressions, and the repetitive frame 'It's a...'. Such uses of English were frequent in the transcripts of B2 and G2's interactions. This is another instance in which repetition functioned as a locus for creative language use in a new context.

3.2. Cognitive Functions of Repetition

3.2.1. Practice/Memorization

In the opening scene of each episode, users can practice English words and phrases that will be used in the upcoming problem-solving activities. If users click on things or persons on the screen, they become animated and some words or phrases emanate in English from the computer. Otherwise, users can click on the section 'learning words and dialogues', whenever they want to learn English words and dialogues they have not understood. The students in this study often went to this section when they had difficulties in solving problems. In both opening scenes and the section 'learning words and dialogues', they practiced English words and phrases and tried to memorize them through repetition. They drew on repetition as a means for assessing how much they remembered what they studied. Furthermore, their incorrect repetitions while attempting to confirm their learning of the words acted as another starting point for further learning by helping the students find out what they do not know. Repetitions for these cognitive purposes were found to be pervasive in all transcripts of the interactions of the students in this study, and it is notable that such repetitions were controlled by the students themselves.

Excerpt 5 is taken from the second interaction between G3 and G4 (pair B). In the section for 'learning words', they practiced the words 'left', 'right' and 'straight'; G3 clicked on one of the words, and together they repeated it after the computer. Excerpt 5 begins after this interactional pattern was repeated for each word.

Excerpt 5

- | | |
|---|---|
| 1. G4 : Left, right. | (points to each word) |
| 2. Ahl Get Ur.
{I have learned.} | (puts her hand over the mouse, but soon pulls her hand away from the mouse) |
| 3. Ee Geh right Goh, [Ee Geh left.
{This one is 'right', this one 'left'.} | (points to the words 'right' and 'left') |
| 4. G3 : [Ee Gur seft, Ah Nee,
{This one 'seft', no,} | (pointing to the word 'straight', G3 tries to pronounce 'straight')
(G3 clicks on the word 'straight') |
| 5. C : Straight. | |
| 6. G3 : [Straight. | |

7. G4 : [Straight.
8. Ah, Ee Gur Hae Bwah, Ee Gur. (points to the word 'left')
{Ah, try this, this.}
9. G3 : Left.
10. Ah, left. (clicks on the word G4 pointed
{Ah, left.} out)
11. C : Left.
12. G3 : [Left.
13. G4 : [Left.
14. G3 : Raft (points to the word 'right' and
mispronounces it as 'raft')
(G3 clicks on the word 'right')
15. C : Right.
16. G3 : [Right.
17. G4 : [Right.
18. G4 : Ah! Get Dah. Ah! Get Dah. (smiles at G3)
{I have learned. I have learned.}
19. Left, right. (with a soft voice)
20. G3 : Ah! Get Dah. (clicks on the icon leading them
{I have learned.} back to the game)
21. [Jahl Dul Ur Yah Dweh Get Dah. (takes a short look at G4)
{We should listen carefully.}
22. G4 : [Left, right. Left, right. (with a soft voice)
(G4 nods her head)
23. C : Maru: Yur Gee Gah Ur Dee Yah? (the scene for problem-solving
{Where am I?} activities in the maze is provided)
24. G4 : Left, right. Right, right (with a soft voice.)
(G4 turns her ear to the computer)

G4's repetition of 'Left, right' while pointing to each word signals that she is trying to make sure that she has memorized the words (line 1). Soon she shows confidence (line 2), and then, once again, she assesses whether she has learned the words (line 3). On the other hand, G3 attempts to repeat 'straight', but pronounces it as 'seft' (line 4). In no time, she acknowledges her misreading by uttering 'Ah Nee' {No}. Here, it is evident that G3's attempt to repeat 'straight' led her to practice it by hearing the word emanating from the computer again and repeating it (lines 6 and 7). We can see other instances in which incorrect repetitions, which occur while they attempt to confirm their learning of the words, act as starting points for further learning in lines 9 and 14.

Although G4 was able to read aloud the words 'left' and 'right' for

herself (line 1), she shows that she is still unsure of the word 'left' by asking G3 to click on it (line 8). Instead of clicking on the word, G3 herself attempts to read it aloud in order to display her knowledge, but she wrongly pronounces it as 'Laft' (line 9). Immediately, she recognizes her misreading by uttering 'Ah,' {Ah,} and she corrects herself by uttering 'left' (line 10). Then, she confirms that her read-aloud of 'left' is correct by clicking on the word 'left' and G3 and G4 together repeat 'Left' after the computer. G3 again attempts to display her knowledge by reading aloud the word 'right' pointing to the word, but mispronounces it as 'Raft' (line 14). Immediately after her mispronunciation, G3 clicks on the word and G3 and G4 repeat it together after the computer (lines 16 and 17). Finally, G4 asserts that she knows the words by saying 'Ahl Get Dah, Ahl Get Dah' {I have learned, I have learned.} while smiling at G3. This seems to signal that she has learned the words through repetition. G3 also claims that she knows the words by uttering 'Ahl Get Dah' {I have learned.} (line 20) and clicks on the icon that leads them back to the previous problem-solving. It is notable that G4's continuing repetition of 'left, right' with a soft voice (lines 19, 22, and 24) clearly reveals her cognitive effort to maintain the words in her memory, although she has asserted that she knows the words.

In this interaction, we see that, through repetition, G3 and G4 tested whether they could remember the words they had practiced and this self-assessment activity provided them an opportunity to learn the words that they could not remember. Therefore it can be said that the activity of repeating the words played a cognitive role by providing them a momentum for learning the words again that they did not know.

3.2.2. Scaffolding

The nature of the tasks that the children had to perform was basically to understand English words and expressions. They had to choose one of the answers to questions spoken in English or to follow English instructions. So, the students in this study tried to catch a main word or a phrase of the voiced questions or instructions emanating from the computer that could be utilized in solving problems. Through repetition of the computerized words or phrases, they externalized their understanding and knowledge related to the problems at hand. The repeated word or phrase functioned as a base or a 'scaffold' (Wood, Bruner, & Ross, 1976) to support students' cognitive work in giving answers. Repetition enabled

the students to hold on to what they had heard, to maintain the word or phrase in their memory, and to think about and evaluate answers. Thereby, repetition cognitively mediated students' interaction on both within and between individuals.

The investigation of the following two excerpts taken from the second interaction between B1 and G1 (pair A) illustrates how repetition played a strategic cognitive role as the students attempted to perform problem-solving activities. In particular, the analysis shows that repetition was an important means for their problem-solving activity.

The analysis of Excerpt 6 reveals that G1 made use of repetition of the words while she was working out the meanings. G1's repetition mediated her cognitive work on the 'intrapsychological' plane; that is, repetition of the words served a psychological tool in her own attempt to figure out their meanings. B1 and G1 are working on a task where they have to click on one of the icons for the magician's body parts following his instructions. They have just done the task of touching the icon for 'shoulder' successfully.

Excerpt 6

1. C : Magician: Touch my knee.
2. G1 : [Knee. (points to her knee)
3. B1 : [Knee.
4. G1 : Yoh Gur, Yoh Gur, Yoh Gur. (points to the icon for 'knee')
{This, this, this.}
5. G1 : Head, shoulder, knee, and (touching her head, shoulder, and
(knee with her hand)
(B1 clicks on the icon G1 pointed
out)
6. C : Ding dong dang dong. (the computer signals the answer
is right with a sound)
7. C : Magician: Oon Ee Jot Un Nyur Surk Ee Goon.
{You're a lucky kid.}
8. Touch my foot.
9. G1 : Foot.
10. Foot (points to the icon for 'foot')
(B1 clicks on the icon J pointed out)
11. C : Ding dong dang dong. (the computer signals the answer
is right)
12. C : Magician: Hung, Maht Aht Goon, Jeh Burp In Deh.
{Hung, correct, you're doing well.}

13. Touch my ear.
14. G1 : [Ear.
15. B1 : [Ear.
16. Ee Gur? (looking at G1)
{This one?}
17. G1 : Hae Bwah. (B1 clicks on the icon)
{Try it.}
18. C : Ding dong dang dong (the computer signals the answer
is right. Then, G1 looks at B1)
19. C : Magician: Hung, Maht Aht Goon, Jeh Burp In Deh.
{Heung, correct, you're doing well.}
20. C : Magician: Touch my eyes.
21. G1 : Eye. (B1 clicks on the icon for 'eyes')
22. C : Ding dong dang dong (the computer signals the answer
is right)
23. C : Magician: Hung, Maht Aht Goon, Jeh Burp In Deh.
{Heung, correct, you're doing well.}
24. Touch my arm.
25. B1 : Har. (B1 clicks on the magician)
26. C : Magician: Touch my arm. (leans his body toward the computer)
27. B1 : Ee Gur Ah Nyah?
{Isn't it this?}
28. G1 : Ur, nose Yah, Guh Gur.
{Ur, that's 'nose'.}
29. G1 : Mouth, Ee Gurn knee, Ee Gurn head, Ee Gurn Pahl (pointing to the icons)
{This 'knee', this 'head', this 'arm'.}
30. Ee Gur, Pahl Hae Bwah, Pahl. (points to the icon for 'rm')
{This, try 'arm', arm.} (B1 clicks on the icon G1 pointed
out)
31. C : Ding dong dang dong (the computer signals the answer
is right. Then G1 looks at B1)

Through repeating the word 'knee' and pointing to her knee, G1 reveals that she has picked up the main content of the magician instruction (line 2). Her repetitive utterance of 'Yoh Gur' {this one} indicates her certainty about the answer (line 4). However, she attempts to make sure what she has chosen is correct; she says aloud 'head' touching her head, says aloud 'shoulder' touching her shoulder, and then repeats 'knee' touching her knee with her hand (line 5). Repetition of each word together with a gesture of pointing to her body enables G1 to evaluate her answer. The

magician continues to give instructions and G1 and B1 externalize their understanding of the instructions by repeating the main words ‘foot’, ‘ear’, and ‘eye’ (lines 9, 10, 14, 15, 21). They follow the magician’s instructions successfully. However, when the magician says aloud ‘Touch my arm’ (line 24), B1 makes an attempt to repeat ‘arm’ but fails, uttering ‘har’ (line 25). B1’s incomplete repetition signals that the base for following the magician’s direction is not in place yet. He clicks on the magician to hear the instruction again. It is clear that B1 is unsure of what he has heard. The instruction ‘Touch my arm’ is repeated (line 26). Here, one thing to note is that whenever the magician gave an instruction, G1 repeated the key word as we can see in lines 2, 9, 14 and 21. However, G1 did not repeat the word ‘arm’, even though the magician uttered it twice (lines 24 and 26). This seems to indicate that she did not absorb the word ‘arm’, either.

G1 makes an attempt to figure out the meaning of ‘arm’. To deduce the meaning of ‘arm’, she repeats the words that she knows one by one, pointing to each icon (line 29). It is notable that G1 did not provide the English word ‘arm’ for the Korean ‘Pahl’ {arm}. Through the process of repeating the names of each part of the body in English with a gesture of touching corresponding parts of her body, she finds out that she cannot utter ‘Pahl’ {arm} in English. At this point, G1 insists that B1 click on the icon for ‘arm’ (line 30). Here, it is interesting to see how G1 is working out the problem. Through repetition of the words, G1 sorts out the words that she knows and those she does not know. So, it can be said that based on the repetition of the other words, she succeeds in finding out the meaning of the target word. Here again, repetition functions as a scaffold in solving a problem.

The analysis of Excerpt 7 demonstrates that repetition played a strategic role in mediating students’ interaction in solving problems on the ‘interpsychological’ plane as well; that is, it served as a psychological tool in the process of B1 and G1’s interactive work of suggesting and evaluating the answers.

Excerpt 7

1. C : Magician: It’s black and white.

It likes [h]ay.

2. G1 : [Ee Gur Dah, Ee Gur. (points to a cow)
 {This is it, this,}

3. C : Magician: It has horns. What is it?

During the argument, time lapses. So the magician gives a new question (line 10). However, G1 and B1 do not seem to catch the magician's new question. G1, still pointing to the animal, insists that B1 click on the animal she pointed out (line 11). Then she again gives the reason why she insists on her own choice, stating 'Like fish Yurt Urt Jahn Nee?' {'Wasn't it 'Like fish'?} (line 12). G1's repetition of 'Like fish' reveals that she worked out the answer based on that phrase. Here we see that B1's repetition of 'Fish' and G1's repetition of 'Like fish' play a mediating role in interactive work of figuring out the answer between B1 and G1.

The analysis of the above two excerpts shows that repetition functioned not only as an indicator of the students' knowledge but also as a scaffold that they used to solve the problem; that is, repetition acted as a basis of cognitive reasoning in answering questions and enabled the students to maintain a key word in their memory while they were working on the problem. Such a function of repetition was frequently found in the students' interactions in this study.

4. Conclusion

We have seen that repetition, a fairly simple but recurring phenomenon in the students' use of English, had various functions in their interaction at the computer. Through repetition, the students achieved the communicative goal of showing their involvement in problem-solving tasks or signaling that the repeated choice was the correct answer for a question. In particular, the examination of repetition showed that the students' repetition might make a contribution to their learning of English in several ways; first, repetition helped the students communicate with each other in English. Some students in this study made an effort to communicate with each other in English by means of using English exclamations, simple expressions, repetitive frames, and appropriation of parts of each other's utterances or the voiced utterances emanating from the computer. Thereby, they had an opportunity to exert their creativity of language use. Second, before getting into task activities or when facing difficulties in solving problems, the students practiced English words and phrases and tried to memorize them through repetition. Furthermore, they used repetition as a means for assessing their learning of words. Incorrect repetitions that occurred while they attempted to confirm their

learning acted as starting points for further learning. Third, the students' understanding and knowledge related to the problems at hand were externalized through their repetition of words or phrases emanating from the computer. Then, the repeated word or phrase functioned as a scaffold to support their cognitive work in giving answers. In this way, repetition enabled the students to maintain the word or phrase in their memory, to think about and evaluate answers, thus serving as a psychological tool of mediating interaction both between and within individuals.

In the situation where the students were at the beginning stage of learning English and shared the same first language, it seems natural that they tended to communicate with each other in their first language and used a great deal of repetition of English words and phrases. One thing to note here is that, according to Weinert (1994), early classroom learning involves a large amount of repetition of words and formulaic language. He also maintains that if the practice of a foreign language through repetition has a positive effect, learners have to repeat language in a situational context and should control practice activities. From this point of view, the students' repetition in this study can be viewed as helpful for their learning of English, since, as shown earlier in the analysis, most of repetition occurred in a situational context, the children had a motivation for repeating the words and phrases, and they had control over their own practice activity.

Several characteristics in the content and organization of the software program seem to have influenced a large amount of the students' repetition of English. The availability of preparation for solving problems in the opening section of each episode and in the section 'learning words and dialogues' engendered children's repetition of English by giving them an opportunity to practice English words and phrases. The non-linear organization and the easy access to the sections where users wanted to work promoted the children's motivation for learning words and phrases through repetition. The feature that users can see or hear certain contents repeatedly just by clicking the mouse not only generated the students' repetition, but helped increase the frequency of input that the learners take in. For example, the students often listened repeatedly to practice English words and dialogues until they are sure of learning them or, instead of guessing the answer, they made an effort to figure out the answer by listening to possible choices as many times as they wanted.

The software used in this study has a limitation in that most of the

tasks are associated with multiple-choice questions. The multiple-choice format may confine users' use of language while they are interacting with the computer and with their partner. Thus, more research could be conducted using different types of software programs, especially programs that provide users with more open-ended problem-solving tasks.

To conclude, this study's claim about the roles of repetition is in line with several studies that attempt to explain the use of repetition in second language interaction as a social-cognitive activity within the Vygotskian framework (DiCamilla & Anton, 1997). I argue that the analysis of the most prominent linguistic phenomenon of L2 language use at the computer, namely, 'repetition', enables us to understand what L2 learners with limited proficiency can do using a L2 resource currently available as it is being acquired through interaction. In addition, various positive functions of repetition asserted in this study seem to provide pedagogic supports for peer interaction at the computer as a potential environment for inducing meaningful interaction between L2 learners.

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Appendix A

Summaries of One of the Episodes in the Software Program: 'A Strange Street'

A dialogue between Maru and John is heard in the scene reproduced in Figure 1:

Maru: Ur, Yur Gee Gah Ur Dee Yah?

{Uh, where am I?}

John, where am I?

John: It's the maze.

Maru: Maze?

Mee Roh? Ur, Ur Tturt Geh Nah Gah Yah Jee?

{Maze? Uh, How can I get out of here?}

John: Don't worry. I'll help you.

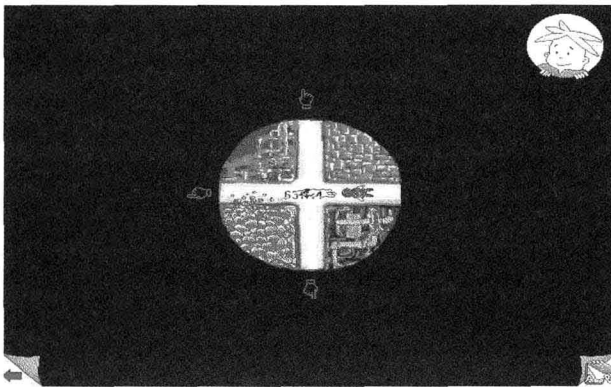


Figure 1. Scene for the First Task

John begins to help Maru get out of the maze. He gives directions as to the way out. The first task here is to follow John's instructions (e.g., 'Turn right', 'Turn left', 'Go straight'). Users have to click on one of the three flashing arrow signs that indicate each direction, i.e., 'right', 'left' and 'straight'. John also gives feedback such as 'Correct' and 'You're doing well'. If users click on John on the top right corner of the screen, they can hear his directions repeatedly. At the end of this task, three gates, each having different colors, appear in front of Maru, and John gives an instruction (e.g., 'Open the yellow door'). Users have to click on the door according to John's instruction. When this is done successfully, Maru is

inside of a room in which the second task is provided and where he meets the magician (See Figure 2):



Figure 2. Scene for the Second Task

The magician warns Maru that if he fails to perform the next activity, he will not get out of the room. The task is to click on the icons for each body part given on the bottom of the screen according to the magician's instructions (e.g., 'Touch my foot').

During the activities in the seven episodes described above, users can go to the sections 'learning words and dialogues' used for the activities. If users click on a word or a sentence, it is read aloud. If the icon next to the Korean translation is clicked on, the computer provides explanations of the meaning and usage of the word or the sentence. Examples of these sections are shown below in Figures 3 and 4:

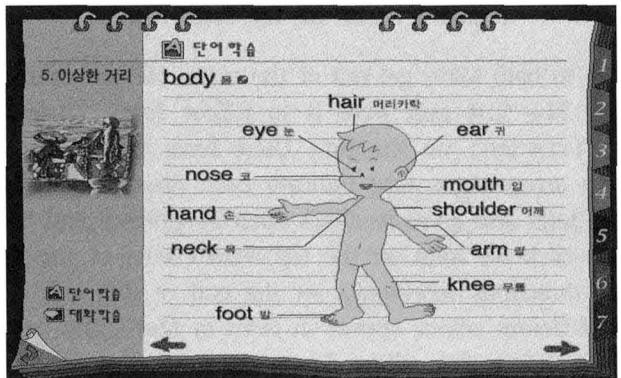


Figure 3. An Example of the Screen for Learning Words

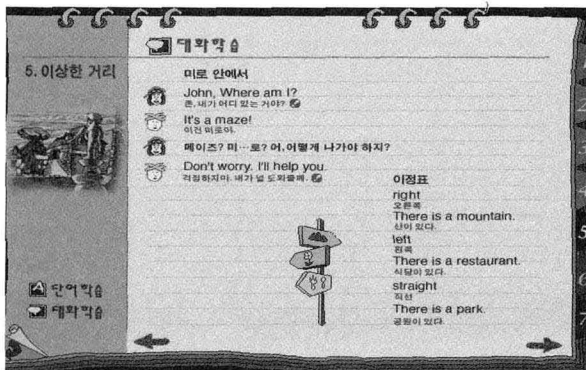


Figure 4. An Example of the Screen for Learning Dialogues

APPENDIX B

Transcription Conventions

Notation	Definition
CAPS	Utterance spoken louder than normal
,	A continuing intonation, not necessarily between clauses
.	A falling intonation contour
?	A rising intonation contour
!	Animated voice tone
[Overlapping utterance
(xxxx)	Utterance unclear
{ }	Translation of Korean talk into English

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